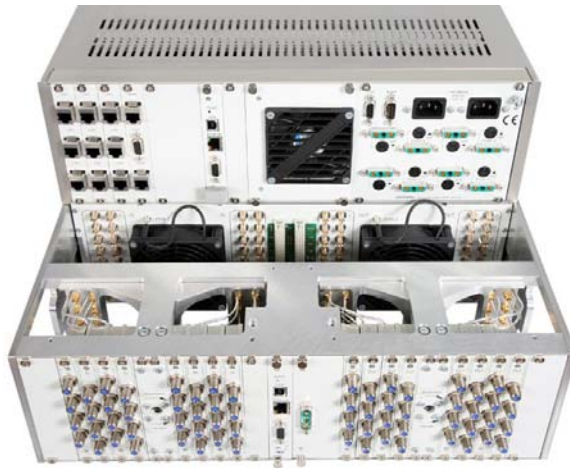


Distributing Matrices



Products:

DEV 1995/zz/nxm - *nxm* Distributing Matrix CATV-Band

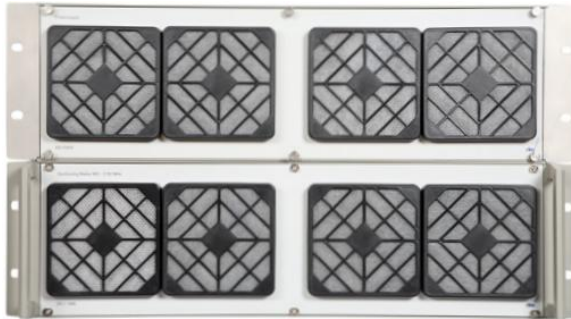
DEV 1996/zz/nxm - *nxm* Distributing Matrix L-Band

Features:

- Series of Distributing Matrices with *n* Signal Inputs and *m* Signal Outputs (*n* and *m* ranging from 8...128)
- Versions for CATV- and L-Band with 50 Ohm and 75 Ohm Impedance (zz) available
- 19" Chassis for Rack Integration (Height of the Housing depends on Number of Matrix I/Os)
- Configuration, Surveillance and Control via comfortable Web Interface
- Remote Control Protocol Support, e.g. SNMP

Application Areas:

- Satellite Ground Stations
- Cable Head End Stations
- Broadcasting Industries



Front DEV 1996/zz/32x32



Rear DEV 1996/75/32x32

The Situation

There are various applications in the RF world which do require the safe and reliable switching and distribution of high frequency signals. For this kind of applications there is a need for a multi-purpose matrix with high uptime and low exchange time instead of many single isolated solutions.

DEV worked out a Solution

To meet the application specific requirements, DEV Systemtechnik has developed a series of Distributing Matrices with a number of input signals and output signals to be selected in a very flexible way. During development it was endeavoured to keep the housing of the instrument as compact as permitted by the number of signal paths. For larger matrix sizes starting from 32x32, a modular concept was realised separating the power supply (named DEV 5065) and the matrix module(s). The matrices are available in two frequency ranges 47...862 MHz (CATV-Band, DEV 1995) and 950...2150 MHz (L-Band, DEV 1996). Both types are available in 50 Ohm with SMA connectors or in 75 Ohm with precision F connectors.

The Technical Concept

The local user interface is realised as a comfortable Web Interface, thus providing means for configuring, switching and monitoring of the instrument. The obvious advantage is that the operator does not need the physical access to the instrument, once the matrix has been installed. The task of integrating the instrument within an M&C system is simplified, since the instrument provides various communication interfaces and supports a few protocol standards, e.g. SNMP. There is no question that the matrix is equipped with DEV standards like redundant power supplies and a dry contact alarm connector. The height of the chassis of this series ranges from 3 RU for an 8x8 matrix up to 15 RU for a 64x64 matrix. 64x128 and 128x64 matrices are delivered in one rack which is 42 RU high. The 128x128 matrices require two 42 RU racks. For larger sizes, please contact DEV Systemtechnik. To lower the initial costs of a larger matrix systems significantly, DEV Systemtechnik offers "Software Upgradeable Distributing Matrices", please refer to the corresponding data sheet. Also, a series of 4x4 matrices in a 1 RU chassis are subject of an extra data sheet.

Technical Data

DEV 1995/zz/nxm / DEV 1996/zz/nxm Distributing Matrices

RF Specifications

Frequency range	47...862 MHz 950...2150 MHz	(DEV 1995/zz/nxm), (DEV 1996/zz/nxm).
Number of inputs (<i>n</i>) x outputs (<i>m</i>)	8x8 8x16 8x32 16x8 16x16 32x8 32x32 32x64 64x32 64x64 64x128 128x2 128x64 128x128 (<i>n</i> x <i>m</i>)	(DEV 199x/zz/8x8), (DEV 199x/zz/8x16), (DEV 199x/zz/8x32), (DEV 199x/zz/16x8), (DEV 199x/zz/16x16), (DEV 199x/zz/32x8), (DEV 199x/zz/32x32), (DEV 199x/zz/32x64), (DEV 199x/zz/64x32), (DEV 199x/zz/64x64), (DEV 199x/zz/64x128), (DEV 199x/zz/128x2), (DEV 199x/zz/128x64), (DEV 199x/zz/128x128), (larger matrices on request).
Impedance (zz), connectors	50 Ohm, SMA (f) 75 Ohm, Precision F (f)	(all 50 Ohm matrices), (all 75 Ohm matrices)
Damage level	+10 dBm	
Nominal input level	-10 dBm	
Return loss	>14 dB	
Gain	+5±3 dB +3±3 dB +1±3 dB 0±3 dB -1±3 dB -2±3 dB -4±3 dB -6±3 dB -7±3 dB -8±3 dB -9±3 dB -10±3 dB -12±3 dB -13±3 dB	(32x32 50 Ohm matrices), (64x32 50 Ohm matrices), & (32x32 75 Ohm matrices), (32x64 50 Ohm matrices), & (64x32 75 Ohm matrices), (8x8, 16x8, 32x8, 128x2 50 Ohm matrices), & (32x64 75 Ohm matrices), (64x64 50 Ohm matrices), (8x8, 16x8, 32x8, 64x64, 128x2 75 Ohm matrices), (8x16 16x16 50 Ohm matrices), (128x64 50 Ohm matrices), & (8x16, 16x16 75 Ohm matrices), (128x64 75 Ohm matrices), (8x32, 64x128 50 Ohm matrices), (64x128 75 Ohm matrices), (8x32 75 Ohm matrices), (128x128 50 Ohm matrices), (128x128 75 Ohm matrices).
Frequency response	±1,5 dB ±0,3 dB	(over entire band) (in any 36 MHz interval)
Isolation	>50 dB >60 dB >55 dB	(input/input), (input/output), (output/output).
Intermodulation distortion	<-40 dBc	(two tones @ -13 dBm)
Group delay	<5 ns	

Technical Data (cont.)

Noise figure	<7 dB	(32x32, 64x32	50 Ohm matrices),
	<8 dB	(8x8, 16x8	50 Ohm matrices),
	<9 dB	(8x8, 16x8, 32x8,	
		32x32, 64x32	75 Ohm matrices),
	<12 dB	(8x16, 16x16, 32x8	50 Ohm matrices),
		& (32x64, 64x64, 128x64	matrices),
	<13 dB	(8x16, 16x16	75 Ohm matrices)
<16 dB	(8x32	50 Ohm matrices),	
	& (64x128, 128x128	matrices)	
	<17 dB	(8x32	75 Ohm matrices).
Relay type	Semiconductor		

Remote Control

Interfaces, connectors	Ethernet, RJ-45; serial interface RS 232 (optional RS 422/RS 485), Sub-D-9 (f).
Remote control & surveillance, interface	<ul style="list-style-type: none"> • via Web Interface, Ethernet; • via SNMP, Ethernet; • via Sandar Prosan protocol, serial interface; <i>OR</i> • via Leitch protocol, Ethernet/Telnet (up to 7 sessions) and via serial interface; <i>OR</i> • via QEC protocol, Ethernet (Telnet port 23) and via serial interface.

Alarms

Two stage alarm signalisation for power line failure	Potential free contacts
Alarm connector	Sub-D-9 (m)
Contact load	60 V; 0,3 A
B-Alarm	One power supply unit does not deliver any secondary power.
A-Alarm	All power supply units do not deliver any secondary power.

Redundant Power Supply (3 RU/4 RU chassis: integrated power supply; ≥6 RU chassis: via DEV 5065)

Redundant power supplies	100...240 V AC out of two different phases	
Power consumption	~25 VA	8x8,
	~35 VA	8x16, 16x8,
	~55 VA	8x32, 16x16, 32x8,
	~65 VA	128x2,
	~110 VA	32x32,
	~180 VA	32x64, 64x32,
	~320 VA	64x64,
	~650 VA	64x128, 128x64,
	~1300 VA	128x128,
	<i>(larger matrices on request).</i>	

Technical Data (cont.)

General Specifications

Housing	width: 19" (483 mm);	
	height: 3 RU (133 mm) 8x8, 8x16, 8x32, 16x8, 16x16, 32x8, 4 RU (178 mm) 128x2, 6 RU (266 mm) 32x32, 9 RU (399 mm) 32x64, 64x32, 15 RU (665 mm) 64x64, 1 * Rack 42 RU 64x128, 128x64, 2 * Rack 42 RU 128x128, (larger matrices on request);	
	depth: 495 mm	all matrices in 3 RU or 4 RU chassis,
	665 mm	all matrices in chassis \geq 6 RU.
Weight	~8 kg	8x8,
	~9 kg	8x16, 16x8,
	~11 kg	8x32, 16x16, 32x8,
	~15 kg	128x2,
	~40 kg	32x32,
	~70 kg	32x64, 64x32,
	~110 kg	64x64,
	~300 kg	64x128, 128x64,
	~600 kg	128x128,
	<i>(larger matrices on request).</i>	
Environmental conditions	ETS 300019 Part 1-3 Class 3.1	

Order Information

All matrices are available for the CATV-Band and for the L-Band; furthermore the impedances (50 Ohm with SMA connectors or 75 Ohm with precision F connectors) can be selected.

For your order, please specify:

x: 5	= CATV-Band	OR	6	= L-Band
zz: 50	= 50 Ohm Inputs & Outputs	OR	75	= 75 Ohm Inputs & Outputs
50-75	= 50 Ohm Inputs & 75 Ohm Outputs	OR	75-50	= 75 Ohm Inputs & 50 Ohm Outputs

e.g. 1996/50-75/32x32 = 32x32 Distributing Matrix 6 RU L-Band 50 Ohm Inputs 75 Ohm Outputs

DEV 199x/zz/8x8	8x8 Distributing Matrix, 3 RU Chassis
DEV 199x/zz/8x16	8x16 Distributing Matrix 3 RU Chassis
DEV 199x/zz/8x32	8x32 Distributing Matrix 3 RU Chassis
DEV 199x/zz/16x8	16x8 Distributing Matrix 3 RU Chassis
DEV 199x/zz/16x16	16x16 Distributing Matrix 3 RU Chassis
DEV 199x/zz/32x8	32x8 Distributing Matrix 3 RU Chassis
DEV 199x/zz/32x32	32x32 Distributing Matrix 6 RU Chassis
DEV 199x/zz/32x64	32x64 Distributing Matrix 9 RU Chassis
DEV 199x/zz/64x32	64x32 Distributing Matrix 9 RU Chassis
DEV 199x/zz/64x64	64x64 Distributing Matrix 15 RU Chassis
DEV 199x/zz/64x128	64x128 Distributing Matrix 1 * Rack 42 RU
DEV 199x/zz/128x2	128x2 Distributing Matrix 4 RU Chassis
DEV 199x/zz/128x64	128x64 Distributing Matrix 1 * Rack 42 RU
DEV 199x/zz/128x128	128x128 Distributing Matrix 2 * Rack 42 RU

The matrices in a 6 RU chassis and larger listed above are available with a smaller number of inputs and/or outputs. These matrices are software upgradeable, i.e. they can be upgraded via software up to their basic size; please refer to the corresponding data sheet.

Larger distributing matrices are possible as well, e.g. a DEV 1996/75/256x256. Please contact DEV Systemtechnik to discuss your special requirements!

Option 52	RS 422 instead of RS 232
Option 53	RS 485 instead of RS 232

Contact

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